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ABSTRACT

The purpose of this investigation was to discover whether any significant differences in reading comprehension would occur when either a "product" or a "process" cloze procedure was used as a teaching technique. The product approach is based on one correct answer per cloze blank, while the process approach considers all answers relative to the reader's experiential background and to the quality of discussion about the cloze passages. Each of the two approaches was used in two fifth grade classrooms. After the 104 subjects were ranked by their scores on the Gates-MacGinitie Reading Test, they completed a 50-item cloze pretest, 30 instructional treatment cloze exercises, and a 50-item cloze posttest. Using a two-way analysis of covariance, no significant differences were found between the product and process approaches or between the high, average, and low readers. (RL)

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AN INVESTIGATION OF TWO INSTRUCTIONAL STRATEGIES FOR READING COMPREHENSION USING CLOZE PROCEDURES

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Background Introduction -

It has often been the case where developments in one field of study have influenced developments in another discipline. This is true because ultimately all knowledge is related. The challenge for the scholar is to recognize these complex interrelationships among diverse fields. Recent developments in linguistics, for example, have found application in the area of cognitive psychology, the study of thought processes. Psychology has incorporated advances in language study to produce the relatively new field of psycholinguistics. In turn, this marriage between language and psychology has had an impact on theoretical developments regarding the nature of the reading process. The relationships among lingusitics, cognitive psychology, and reading form the theoretical basis for the present study.

The importance of language in an educational setting has long been realized. However, the exact nature of language is still the subject of debate. The work of the linguist Noam Chomsky (1972) has particularly stimulated discussion regarding the theoretical nature of language. Chomsky's notion of the existence of a deep and surface structure in language is basic to the psycholinguistic conceptualization of the reading process as elaborated by Kenneth Goodman (1967, 1968) and Frank Smith (1971). Their theoretical work in turn has spurred research into the role of linguistic and cognitive competencies which affect academic achievement.

The area of cognitive psychology seeks to answer various questions regarding the nature of thought, how people think, and the different forms of thinking. Unlike language which has a definite performance dimension, thought processes take place strictly at the covert level. No one to date has devised a way of entering the living brain and observing what takes place during thinking. Researchers have investigated however, the influence of language on the thought processes. The work of Britain's Robert Thomson (1969)

suggests that:

> Thought cannot be simply identified with language. Yet it is possible that language is a necessary condition for acquiring and developing many drills and skills which are necessary for the sophisticated types of thinking. (p. 165)

Perhaps the foremost proponent of the deterministic role of language upon cognitive development was the Russian scholar Lev Vygotsky (1962). Vygotsky, in much the same manner as Piaget, carefully observed young children at play and in various learning situations. His observations led him to conclude the following: (1) egocentric speech in young children is an important transition period leading towards true thought in the adult and characterized by inner speech or endophasy; and (2) the mental abilities of children can be improved through the direct imposition of linguistic activities.

Similarly, one of America's foremost authorities in cognitive psychology, W. Edgar Vinacke (1974), believes that language competencies are strongly related to the ways in which people think. Vinacke argues that language provides an economical vehicle for transmitting learning while at the same time it also facilitates the processes of memorization and conceptualization.

The relationship between langauge and thought takes on particular significance when one examines the nature of the reading process, particularly reading comprehension. In the past, research in reading emphasized phonics, word analysis, and patterns of words. Today a new emphasis can be seen by the concern of researchers with reading as a cognitive process by which meaning is derived.

When viewed as an aspect of thinking, reading comprehension takes on a new dimension. That is, the improvement of reading comprehension skills in children is linked to improvement in general cognitive abilities.

It also appears that cognitive abilities are related to proficiency in and use of language. However, this researcher's observations of elementary school classrooms revealed teacher dominated lessons, passive students, and

little real verbal interaction among students. The question is therefore raised, can children's thinking be stimulated through the use of language to improve reading comprehension skills? To answer this question two prerequisite conditions must exist. First, it is necessary to identify the processes which occur during reading comprehension. Second, an instrument is needed which effectively requires students to perform in accordance with the reading comprehension process.

The first condition, identification of the process, is met by the psycholinguistic theory of reading as described by Goodman (1967, 1968, 1972, 1973) and Smith (1971). This theory conceives of language as occurring on two levels: surface structure level and deep structure level. The former refers to the physical characteristics of language; in the case of reading this is the printed symbols on a page. Deep structure refers to meaning. In their search for meaning from the printed page young readers employ a variety of strategies: phonic analysis, structural analysis, and context clues. How different children employ or fail to employ these strategies influences instructional practices which attempt to relate psycholinguistic theory to classroom application.

Obviously there are other theories to explain the reading process. Why choose the psycholinguistic theory of reading? To those who would object to this theory on the grounds that it is insufficient to describe the complex process of reading, this researcher refers the reader to Donald O. Hebb (1958, p. 460) who noted that "what we need from a theory is that it should hold together long enough to lead us to a better one." The psycholinguistic theory has served well as the framework within which the present experiment was conducted.

The second condition, an instrument to use in conjunction with the theory, is also met by the existence of the cloze procedure. The cloze procedure

requires students to respond to a reading passage from which individual words have been deleted by supplying the missing terms. It demands that the reader search for information clues in order to predict the unknown word. A successful search requires that the word chosen be syntactically and semantically consistent with the rest of the sentence. The use of syntactic and semantic cues, the role of prediction and hypothesis testing, and the stress placed upon acquiring meaning from print are inherent in the cloze procedure. This is also what the psycholinguistic theory asserts takes place during the reading process.

The Study

In this experimental study the author used the cloze procedure as a means of investigating the relationship between language and thought as it applies to the reading comprehension process. Two different instructional strategies were examined in terms of their ability to improve children's reading comprehension as determined by their responses to cloze passages. One instructional strategy was referred to as a Product Approach. The other was labeled a Process Approach. The Product Approach instructional strategy is based on a single correct answer, determined in advance, to each cloze blank. The Process Approach instructional strategy treats all answers as relative to the reader's experiential background and the quality of discussion related to the cloze passages.

It was the purpose of this investigation to discover whether there is a significant difference in reading comprehension as measured by the cloze procedure, between one experimental group trained by a Product Approach and another trained by a Process Approach.

Hypotheses To Be Tested

Null Hypothesis One: There is no statistically significant difference in posttest cloze scores between a Product Approach group and a Process Approach group.

Null Hypothesis Two: There is no statistically significant difference in posttest cloze scores between high, average, and low readers in a Product Approach group when compared with high, average, and low readers in a Process Approach group.

Procedures

Four classes of fifth grade students (N=104) from three different schools were selected from a population of fifth grade classes in a suburban school district which is predominately Anglo (84%) and characterized as middle class. All of the 104 subjects were administered the Gates-MacGinitie Reading Test, Survey D (1965), a 50 item cloze pretest, 30 treatment cloze exercises (one per day), and a 50 item cloze posttest. Subjects were ranked as high, average, or low based on their raw score performance on the Gates-MacGinitie Reading Test. The cloze passages were created by deleting every fifth word from narrative and expository material selected from The Science Research Associates (SRA) Power Builders Kit Lab IIB. The pretest and posttest cloze raw scores represented reading achievement.

Two of the classes were randomly assigned by the researcher to the Product Approach. The students were given cloze treatment passages and instructed to complete them individually and silently. At the end of ten minutes the classroom teacher provided the students with feedback by writing the correct answers on the chalkboard and then reading the passage aloud with the correct answers. Students graded their own papers by comparing their responses with the correct responses given by the teacher. A daily treatment period lasted fifteen minutes.

The remaining two classes were assigned to the Process Approach. Students were divided into small groups, given the cloze passage and instructed to discuss among themselves the possible responses to the cloze blanks. Student discussion thus took place prior to and during the actual completion of the cloze blanks. The classroom teacher served as a facilitator of the verbal interactions by encouraging all members of the group to justify to one another

their selection of a particular cloze response. At the end of each fifteen minute daily discussion period the cloze papers were collected.

Data Analysis and Results

The accumulated data were analyzed using a two way analysis of covariance on posttest cloze scores. Pretest cloze scores were used as the covariate to adjust for any initial group differences. The method of instruction (Product or Process) and the rank of the students (high, average, or low) were the independent variables. Posttest cloze scores were the dependent variable. The level of significance chosen for analysis was .05.

Table 1 is a summary of the analysis of covariance performed on the data. No significant differences were found between the Product and Process Approaches upon examination of the F ratio of the main effect of method. No significant differences were found between the high, average, and low readers when compared across the different methods upon examination of the F ratio of the interaction effect between method and rank. The two null hypotheses for this study, therefore, were not rejected.

TABLE 1

ANALYSIS OF COVARIANCE WITH METHOD OF INSTRUCTION AND RANK OF THE STUDENT AS THE INDEPENDENT VARIABLES, POSTTEST CLOZE SCORES AS THE DEPENDENT VARIABLE AND PRETEST CLOZE SCORES AS THE COVARIATE

Source of Variation	Sum of Squares	DF	Mean Square	F ratio	Significance of F
Covariate of Pretest	13.832	1	13.832	88.350	.001
Main Effects By:					
Method	.060	1	.060	.386	.999
Rank	.841	2	.420	2.685	.072
Two Way Interaction of Method with Rank	.104	2	.052	.332	.999
Explained	14.804	6	2.467	15.759	.001
Residual	15.187	97	.157		
Total	29.990	103	.291		

Discussion -

The present study was conducted to add to the existing knowledge in the areas of language and cognition, and the cloze procedure as a teaching technique to improve reading comprehension. Earlier research by Schneyer (1965), Jongsma (1971), Kennedy (1971), and Gunn and Elkins (1976) suggested that combining student discussion with the cloze procedure would significantly improve reading comprehension. This idea was not supported by my own study. Furthermore, the majority of research studies examined which involved oral discussion and cloze, such as Guice (1966), Martin (1968), Faubion (1971), Cox (1974), McGrath (1974), and Paradis and Bayne (1977) found no significant differences between control and experimental groups. This should cause researchers to raise the question, why use cloze with oral discussion if it doesn't make a substantive difference in students' achievement?

Ever since the International Reading Association published its monograph on The Cloze Procedure As A Teaching Technique (Jongsma, 1971) there has been a rush to use cloze in the classroom to improve students' reading comprehension abilities. Jongsma stated at that time that the procedure would be even more effective if oral discussion was included as part of the strategy. Thomas (1978) in outlining a teaching procedure for the instructional applications of the cloze procedure also urges teachers to include a follow-up to cloze completions with

> "discussion of alternatives and possible variations, and explanations of why each specific word or word element was selected." (p. 11)

Yet in the same article he admits that

> "No systematic procedures have been established empirically for using CLOZE in an instructional setting." (p. 11)

Obviously since teachers are using cloze as a teaching technique they must believe in its efficacy. What then is the appeal of the cloze procedure as a teaching technique? Similarly why has it not generally proved successful when

submitted to the rigors of experimental research?

The appeal of the cloze technique for teachers lies in three areas: affective learning, active student involvement, emphasis on meaning. My own research involving cloze and reading comprehension strategies supports the appeal of cloze as a teaching technique. In the study previously described students' subjective comments and my observations during the experiment revealed that the children enjoyed the cloze activity. They also enjoyed the follow up discussions where they had to defend their choices for particular cloze answers. In terms of positive attitude towards reading and active involvement in the meaning gaining process I would therefore conclude that cloze is a successful approach to teaching reading.

The reserach literature in cognition, oral language development, and reading also supports the idea of the existence of a positive relationship among these three areas. Group discussion which involves active participation by individual members does appear to enhance problem solving. Educators observations confirm that actively involved students often grasp difficult concepts more easily than their passive peers. When related to reading instruction, the literature reveals that most students are taught to use a combination of three reading decoding strategies: phonic analysis, structural analysis and context clues. In terms of utility, context clues is by far the most widely used of all decoding strategies among all age levels of readers. The cloze procedure, by its very nature, forces students to use their context clue skills. When combined with oral discussions it further actively involves students in the learning process.

Despite the innate appeal of the cloze procedure it is also clear that cloze as a teaching technique has a ways to go before its advocates can trumpet its success. The primary challenge to teachers who use cloze is to convince their students that reading truly is a search for meaning. This search is as, if not more, rewarding than the final determination of the exact word for a particular cloze space. The Process group students in my study, for example, continually

asked to know the single correct answer for each cloze space, despite their having been carefully told that there was no one correct answer. Any response that was syntactically and semantically justifiable was accepted. From the pupils reactions I conjectured that the need for specific verification was a powerful learning stimulus which had been conditioned in them during their four previous years of schooling. They believed that every question or problem had to have an absolute answer. The six week Process Approach treatment period which emphasized relative responses could not overcome this belief.

A secondary challenge presented by cloze lies in the very nature of the task itself. Basically, cloze is difficult for many students, especially poorer readers. The average and low readers in my experimental groups were confused by the length of the cloze blank; they continually inserted more than one word in a single cloze space. They also became frustrated when unable to think of a word for the blank space. In short the challenge of the task created frustrations which impeded reading instruction. This in part was due to the lack of familiarity with cloze prior to the experiment. Had these student used the cloze procedure throughout their school years they might have been more receptive to the challenge of the task.

The cloze procedure as a teaching technique is being used in the schools. If, however, it is to become a widely accepted strategy to improve children's reading comprehension some improvements must be made in the way it is presented. First, children need to be introduced to the technique in the primary grades with short passages containing only a limited number of deleted words. Gradually during the elementary grades the passages should increase in length and number of deletions. Second, when teaching the cloze procedure, both exact responses and alternate synonym responses should be used and carefully explained; experimental reserach has yet to establish advantages to using exact over synonym responses or vice versa. Third, in order for discussion, either during or after cloze

completion to be beneficial, students must be carefully trained in discussion techniques. Furthermore, the merits of relative versus absolute answers and the importance of justifying one's answers need to be taught to children continuously throughout the grades. Getting young people to think and communicate their thougnts to others should be a primary goal of all teachers. But it is not an easy goal to achieve. The cloze procedure can contribute to this goal if the complexity of the cloze procedure is taken into consideration when using it to teach reading comprehension skills.

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